

**Technical Document for Promulgation of Standards**

**National Emission Standards for Hazardous Air Pollutants:  
Rubber Tire Manufacturing**

**Comment and Response Summary**

**February 6, 2002**

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I. SUMMARY

EPA proposed national emission standards for hazardous air pollutants (NESHAP) for tire manufacturing were published in the *Federal Register* on October 18, 2000 (65 FR 62414). The purpose of this document is to present a summary of the non-confidential public comments received on the proposed standards and the responses developed by EPA. This summary of comments and responses serves as the basis for revisions made to the standards between proposal and promulgation.

EPA received 19 public comment letters on the proposed rule. The commenters represent the following affiliations: rubber tire manufacturers (4 companies), industrial trade associations (5), and one State and local agency association. Table 1 presents a listing of all persons submitting written comments, their affiliation, and the docket number for their comments. The docket number for this rulemaking is A-97-14. No public hearing was requested.

TABLE 1. LIST OF COMMENTERS ON THE PROPOSED NESHAP FOR TIRE MANUFACTURING, 40 CFR 63, SUBPART XXXX

Number	Commenter, Addressee, Title or Description, etc.	Date of Document
IV-D-01	R. Colby, ALAPCO Toxics Committee Chair, B. Higgins, STAPPA Toxics Committee Chair. State and Territorial Air Pollution Program Administrators (STAPPA) / Association of Local Air Pollution Control Officers (ALAPCO)	12/14/00
IV-D-02	R. Wisner, Quality and Environmental Manager, Acordis Industrial Fibers Inc.	12/15/00
IV-D-03	C. Price, Vice-President, CHEMSTAR, on behalf of the Solvents Council of the American Chemistry Council	12/18/00
IV-D-04	D. Foerter, Deputy Director, Institute of Clean Air Companies	12/15/00
IV-D-05	D. Chapman, Manager, Global Environmental Services, The Goodyear Tire & Rubber Company	12/18/00
IV-D-06	J. Boyd, President, International Carbon Black Association	12/14/00
IV-D-07	A. King, Senior Manager, Environmental Affairs, Bridgestone/Firestone, Inc. and D. Scher, Manager, Environmental Affairs, Bridgestone/Firestone Manufacturing Operations	01/24/01

TABLE 1. LIST OF COMMENTERS ON THE PROPOSED NESHAP FOR TIRE MANUFACTURING, 40 CFR 63, SUBPART XXXX

Number	Commenter, Addressee, Title or Description, etc.	Date of Document
IV-D-08	T. Wood, Director, Corporate Environmental Affairs, Cooper Tire & Rubber Company	01/24/01
IV-D-09	D. Chapman, Manager Global Environmental Services, The Goodyear Tire & Rubber Company	01/25/01
IV-D-10	T. Norberg, Director Environmental Affairs, Rubber Manufacturers Association	01/25/01
IV-D-11	J. Bardi, Administrative Assistant, ASTM	10/20/00
IV-D-12	T. Norberg, RMA, to A. Wayne, EPA/PPSG. Request for extension of comment period.	10/24/01
IV-D-13	D. Novello, Freedman, Levey, Kroll, & Simonds, to A. Wayne, EPA/PPSG. Letter confirming EPA's agreement to consider comments submitted by 1/25/00.	11/02/00
IV-D-14	S. Bhavsar, Director of Environment, Health & Safety, Yokohama Tire Corporation (Letter located in confidential files)	01/24/01
IV-C-02	R. Dimascia, Goodyear	09/26/00
IV-G-01	T. J. Norberg, RMA, to A. Wayne, EPA/PPSG. Request for meeting and clarification of original comments.	06/14/01
IV-G-02	T. J. Norberg, RMA, to L. Fisher, Deputy Administrator, EPA. Request for meeting and clarification of original comments.	07/26/01

## II. APPLICABILITY

### A. “Once In, Always In” Policy

Comment: One commenter (IV-D-01) made a generic comment on several recently proposed standards, including the one for rubber tire manufacturing, that EPA should do more to encourage pollution prevention. Specifically, they suggested that EPA provide an exception to the “once-in-always-in” policy for sources that subsequently (i.e., after initial compliance) implement pollution prevention approaches which produce superior emission reductions no less than required by the

maximum achievable control technology (MACT) standard and would make them “natural minor” sources for the pollutants in question.

Response: The rubber tire manufacturing standard already does a great deal to encourage pollution prevention. To begin with, much of the standard is based on pollution prevention techniques. To the extent that it allows the use of add-on controls, it encourages the use of pollution prevention techniques through reduced monitoring and recordkeeping costs. Particularly noteworthy is the option of purchasing complying solvents and cements for tire production, in which case the only requirement is to retain purchase records. The minimal nature of these provisions is expected to encourage the use of this option, which has the advantage of limiting the opportunity for release of hazardous air pollutants (HAPs) at the plant to minimal levels.

For NESHAPs in general, EPA is developing, through discussion with STAPPA/ALAPCO, a tentative solution that will require changes in the Part 63 General Provisions or individual MACT rules rather than a change in the policy memo itself. EPA has been working to develop regulatory options that would allow qualifying sources to satisfy the MACT requirements through innovative streamlined approaches after the compliance date if they achieve emission reductions equivalent to or better than MACT levels of control through pollution prevention measures. The regulatory options under consideration for final agreement will include components that meet the legal requirements of the CAA and still resolve the issues regarding pollution prevention. After reaching final agreement, EPA intends to develop the appropriate regulatory language and propose changes to the Part 63 General Provisions or existing rules later this year. These provisions are expected to be very similar to what already exists in this standard for rubber tire manufacturing.

#### B. Tire Production Source Category

Comment: Commenters (IV-D-10, IV-D-08) said EPA should clarify the source category definition by providing an exclusive list of tire components to allow sources to determine whether a particular component is “integral to rubber tires” for purposes of the rule. The commenter said tire bladders, components for retreaded tires, and retread assembly operations should be excluded.

According to one commenter (IV-D-10), tire bladders are manufacturing equipment used in the operation of tire curing presses. Tire bladder manufacture does not use cements or solvents and is based on a different process.

The commenters (IV-D-10, IV-D-08) also said retread component manufacturers and retread assembly facilities contain distinct manufacturing operations conducted in separate facilities. The vast majority of retread assembly facilities manufacture pre-cured treads, which involve the use of different cement formulations than are found in tire production facilities. For example, the cement must remain tacky for up to one year from the date of manufacture in order to facilitate distribution to the retread assembly facility. The commenter said EPA does not have data upon which to base a MACT floor or

standard. If EPA decides to regulate these sources, it must collect the needed data and issue a supplemental notice.

The commenter (IV-D-10) said emissions from these sources are small, the operations are specialized, and no data collected by EPA represents emissions information from them. As such, the commenter recommends that EPA modify the applicability language in the proposal to clearly exclude them.

Response: EPA agrees with the commenters that tire bladders are not integral components in the tire because they are used in an intermediate production process and are not found in the final product. Therefore, the final rule will reflect this definition in §63.5981(a)(1).

EPA considered whether to include tire retread manufacturing operations and tread manufacturing operations expressly in the source category definition at proposal.<sup>1</sup> At that time, no major tire retread manufacturing sources were identified that would be subject to the rubber tire manufacturing rule. However, to the extent that these facilities use cements and solvents in producing retread tires, and they are major sources (standing alone or due to collocation), EPA believed they would be subject to the final rule because of similarities in the tire production process. In considering comments on this topic, EPA reconsidered information regarding the potential for HAP emissions from retreading operations, the applicability of the proposed rule, and the appropriateness of the tire production MACT floor for retreading operations.<sup>2</sup>

In evaluating the tire production source category definition, EPA considered whether it had appropriately included retread tire manufacturing as part of the tire production subcategory. In doing so, EPA explored how the retreading process compares to new tire manufacturing, the potential for HAP emissions from both processes, and whether the tire production subcategory definition should include retread tire manufacturing.

In both “new” tire production and retread tire production, tire building stations are used to create the pre-cured or pre-vulcanized tire. Several tire components may be combined for a virgin tire versus only two to three components for a retread tire. In the latter case, the carcass has been constructed eliminating those component steps in tire building for the retreader. The vulcanizing and curing of both the retread and the “green” tire are identical in their use of tire molds, the time for curing,

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<sup>1</sup>Memorandum from B. Friedman, EC/R, C. Overcash, EC/R, and W. Sanford, Sanford Consulting to T. Wayne, EPA/PPSG. July 13, 2000. Rubber Tire Manufacturing Source Category Definition and Subcategorization.

<sup>2</sup>Memorandum from A. Wayne, EPA/PPSG, to Project File and Docket. September 7, 2001. Rubber Tire Manufacturing MACT Applicability to Tire Retreading Operations.

the temperatures, and the pressures. These parameters are set in order to meet the tire safety and longevity specifications of the industry.

The HAP emissions associated with sidewall cementing, tread end cementing, tire building and retread tire building all use similar cement and solvent formulations. Specifically, the main components of the cements and solvents used by both new and retread manufacturers are hexane and toluene. The primary purpose of these cements and solvents is as a temporary aid to ensure that the rubber compound surface remains “tacky” during tire building. However, several tire manufacturers and retreaders have reformulated or eliminated the use of these toxic compounds in their operations, while presumably still achieving the desired performance characteristics. The data, therefore, demonstrate that reformulation is achievable for retread manufacturers notwithstanding the commenter’s claim that such operations may use formulations that differ from those used in tire production.

The review and evaluation of the tire building methods, tire building machinery, solvent and cement usage and application, and vulcanizing and curing processes for both new and retread tire operations has not indicated significant differences in production techniques or in the types of tires being made. The original conclusion to include retreading in the tire production subcategory, therefore, has not changed under this subsequent analysis.

EPA also examined the data sources developed and used to establish the MACT floor for tire production to see if the data included tire retread operations. The Rubber Manufacturers Association (RMA) database questionnaire that obtained the information used for the impacts analysis requested that all miscellaneous solvent and cement and adhesives be reported. Therefore, EPA believes that facilities with retreading operations did report the emissions from them. In addition, at least one facility conducting retreading operations provided HAP emissions specific to retreading in terms of their solvent, cement and adhesive usage. Based on this information, EPA concluded that emissions associated with the retreading operations at facilities included in the RMA’s database are included in the overall emissions reported from the RMA and the individual companies and were considered in selecting the tire production MACT floor.

In addition, EPA examined the 1996 National Toxics Inventory (NTI) data, which revealed only three potential stand-alone major source stand-alone facilities for retreading in the U.S. The primary pollutants reported were hexane and toluene. The 1996 NTI reported that HAP emissions from these sources ranged from 8 to 16 tons per year. Subsequent contacts with the permitting agencies for these sources revealed that the facilities have significantly reduced or eliminated HAP emissions. This analysis demonstrates the ability of retread facilities to substantially reduce or eliminate their HAP emissions.

In conclusion, EPA believes that tread is an integral component of tires, and retread manufacturers should be subject to the emission standards for tire producers to the extent that they use cements and solvents.

### C. Tire Cord Production Applicability

Comment: One commenter (IV-D-10) said tire manufacturers own and operate cord-treating facilities that treat cord for other fabric products, such as belts and hoses, and these facilities will be regulated by the fabric printing, coating, and dyeing MACT. Sometimes, these facilities treat tire cord due to equipment maintenance and repair, manufacturing flexibility, or other production needs. These occasions do not normally involve a majority of the facility's production capacity.

Commenters (IV-D-10, IV-D-08) recommend that EPA adopt a predominant use mechanism to determine which of the MACT rules applies based on the majority of the facility's production. EPA should allow such facilities to determine which MACT applies up until the compliance date of the first applicable MACT.

Response: Section 63.5981(b)(1) will clarify the potential overlapping applicability of MACT standards for tire manufacturers who own and operate cord-treating facilities that produce tire cord as well as other fabric products, such as belts and hoses. For example, EPA is developing the fabric printing, coating, and dyeing NESHAP, which will potentially address the same cord coating operations as today's rubber tire manufacturing rule. In order to minimize potentially redundant requirements at these types of facilities, EPA will change the final rule to exempt coating activities where the primary product is a web substrate other than tire cord, and the activities are regulated by another NESHAP. In other words, where tire cord is the primary product, the rubber tire manufacturing NESHAP would apply. Where it is not, the other NESHAP would apply. Any facility with potential overlapping applicability would have to determine which NESHAP apply to the facility by the compliance date of the first applicable NESHAP.

Comment: One commenter (IV-D-10) says that warehouse storage vents should not be subject to the rule because there is no basis in the data collected to support their inclusion and they do not make a significant contribution of HAP emissions from a tire cord facility.

Response: This comment is part of a broader issue raised in sections IV.B and IV.D. that concerns how broadly to define the tire production sources that are used in the compliance determination. EPA's intent is to require a facility-wide mass balance, such that all of the tire cord operation emission sources are part of the compliance demonstration. However, unless the warehouse storage vents somehow serve to reduce HAP emissions that would otherwise be emitted, their presence in the compliance demonstration is transparent. In general, EPA assumes that use equals emissions, unless there is a control system in place. Therefore, storage vents and other similar sources would be addressed elsewhere in the material balance. See also the answers to the questions in sections IV.B and IV.D.

### D. Puncture Sealant Application Subcategory

Comment: One commenter (IV-D-10) said the rule should be structured to include all possible puncture sealant operations developed by the tire industry. EPA should revise the definition of puncture

sealant to state that it “means a mixture that may include solvent constituents and mixed rubber compound....”

Response: In general, the intent of the change appears acceptable. EPA, however, will add the phrase “but is not be limited to” to the definition of puncture sealant in §63.6015 to clarify that the mixture components listed in the definition are not exclusive.

E. Research and Development Operations

Comment: Commenters (IV-D-10, IV-D-08) said research and development (R&D) operations should not be subject to the rule. Excluding them would be consistent with EPA statements in the advanced notice of proposed rulemaking to list R&D as a separate source category (62 FR 25877) that including R&D operations in a rule governing manufacturing operations would be problematic. Therefore, removing R&D activities from the tire manufacturing MACT is consistent with other EPA programs such as the Toxics Release Inventory Laboratory Activity Exemption. The commenter said the tire industry continually develops new technologies for tire design and manufacture and including R&D activities in the proposed rule would limit innovation in tire safety and performance and the resulting environmental benefits.

The commenter added that EPA lacks consistent data on R&D operations within tire manufacturing facilities, because the RMA questionnaire did not specifically request it. Nor has EPA collected data from stand-alone research facilities. If EPA decides to include R&D operations it must collect the additional data and issue a supplemental proposal. The commenter recommends that EPA remove R&D facilities from the applicability of this rule, due to the relatively low emissions associated with these operations and the tire industry’s need for flexibility in product innovation.

Response: EPA agrees R&D operations should not be subject to the rubber tire manufacturing rule. EPA decided excluding them is more consistent with statements in the advanced notice of proposed rulemaking cited by commenters, which suggested that R&D operations should be listed separately because including them in a rule governing manufacturing operations would be problematic. EPA is not aware of any stand-alone major R&D facilities. In fact, R&D is focused on development of rubber compounds, which should involve minimal solvent use. For these reasons and because R&D operations were not necessarily addressed in the MACT floor determination, the final rule (§63.5981(b)(2)) will exempt R&D facilities as defined in section 112(c)(7) of the CAA. An R&D facility is one “whose primary purpose is to conduct research and development into new processes and products, where such source is operated under the close supervision of technically trained personnel and is not engaged in the manufacture of products for commercial sale in commerce, except in a de minimis manner.”

F. Maintenance Solvents

Comment: Commenters (IV-D-10, IV-D-08) said the proposed rule’s statement that the subpart would apply to “general plant cleanup operations” is vague and would inappropriately include

solvents used for maintaining (vs. cleaning) process equipment. These substances are not included in the RMA MACT database. The commenter suggests modifying §63.5982 by replacing the reference to “general plant cleanup operations” with “process equipment cleaning materials.”

Response: EPA agrees with this clarification and will make the change to the rule.

#### G. Rubber Mixing Operations

Comment: One commenter (IV-D-10) said the rule should define rubber mixing operations affected by the rule as those mixing operations whose predominant use is for the mixing of rubber for rubber tire manufacturing, with predominant use defined as over 50 percent of a source's production. Such a provision would allow for incidental mixing of rubber for tire components at non-tire manufacturing facilities, without unduly triggering applicability to this rule. According to the commenter, this is relevant because rubber mixing is conducted at both stand-alone rubber mixing operations and at facilities that mix other rubber products. They suggested that a non-tire manufacturing facility that mixes rubber for use by a tire manufacturing facility would need to determine whether the rule applies at the beginning of each reporting year, based on production information from the previous year.

Response: We believe that the impact of the NESHAP on the sources described by the commenter is minimal because there are no emission limits or other requirements for rubber mixing, because these mixing operations are included in the rubber processing affected source. In addition, a rubber mixing operation would have to be a major source to be subject to the NESHAP. However, we have revised the definition of “rubber mixing” in §63.6015 to clarify that the affected operations are those that make mixed rubber compound for use in rubber tire manufacturing, which should clarify applicability at sources that make mixed rubber compound for other purposes.

### III. MACT DETERMINATIONS

#### A. Basis for MACT Standard

Comment: One commenter (IV-D-04) was concerned that this proposal (and others) results in significant emissions that are either uncontrolled or poorly controlled. Waiting until the residual risk phase will delay needed reductions and be much more costly. The commenter said maximum emission reductions that are achievable with available control technologies need to occur under the initial MACT/NESHAP rules. EPA should not reject the use of proven control technologies in setting the MACT emission limits just because these controls have not previously been required in a particular industry or for a particular process.

Response: EPA has established MACT for this proposal consistent with the direction Congress provided in the CAA. As described in sections I.B (What Criteria are Used in Developing NESHAP?) and III.C (How Did We Determine the Basis and Level of the Proposed Standards for Existing and New Sources?) of the proposal preamble (65 FR 62414, October 18, 2000), EPA followed its standard process for establishing the MACT floor and resulting MACT for this source

category. According to the Clean Air Act, the MACT floor is the minimum level of control that assures that all major sources achieve the level of control at least as stringent as that already achieved by the better-controlled and lower-emitting sources in each source category or subcategory. EPA also considered the viability and costs associated with beyond-the-floor options, but did not identify any feasible options.

Comment: Commenters (IV-D-10, IV-D-08) said EPA incorrectly calculated the existing source MACT floors for tire manufacturing and tire cord sources by considering only the performance of the lowest-emitting sources in the database. Commenters believe the statutory language in section 112(d)(3)(A), which requires EPA to determine existing source MACT floors by looking at the “average emission limitation achieved” by existing sources, means that EPA must establish floors based on the average permit or regulatory limits applicable to such sources. Commenters argue that the term “emission limitation” is a term of art defined in section 302(k) and that Congress’ choice of the term for existing source floors, and not new source floors, evidences Congressional intent to base existing source floors only on current permit and regulatory requirements.

Response: EPA does not agree that section 112(d)(3) precludes the use of actual performance data for the best controlled sources in establishing the MACT floor for existing sources. The notion that, in setting floors for existing sources, EPA must ignore the actual emissions of the top performing sources and instead only consider the limits contained in permits these sources happen to have, is not compelled by the statutory language and would be inconsistent with the case law and legislative history surrounding the MACT floor provisions. EPA believes the approach used in this rule reasonably uses the available data to establish floors that reflect the actual performance of the best performing sources.

The natural reading of section 112(d)(3) is that the floor is to reflect the performance of the average of the best performing 12 percent of sources, whatever that level is. Section 112(d)(3)(A) states that the floor must be based on the “average emission limitation achieved by the best performing 12 percent of the existing sources (for which the Administrator has emissions information). . . .” CAA § 112(d)(3)(A) (emphasis added). This language strongly suggests that Congress intended EPA to utilize whatever data it had available regarding the actual emissions from these sources, and that it did not intend to restrict EPA to utilizing only permit or regulatory limits. First, the terms “achieved” and “best performing” refer directly to the sources’ actual performance. If Congress intended the floor to be based exclusively on permit limitations, the sources’ actual performance would be irrelevant. All that would matter is the regulatory limit, embodied, not in the sources’ performance, but in their operating permits.

The statute also specifically directs that the floor is to be based on the performance of those sources for which EPA has “emissions information,” a pointless reference if regulatory limitations are the exclusive benchmark for the standards. Regulatory limitations are a matter of public record, published in compendia like the Code of Federal Regulations (and their State counterparts) or in the source’s operating permit. Actual test data, on the other hand, are a limited commodity which (unlike regulatory

limitations) do not uniformly exist. Congress acknowledged this in stating (in the parenthetical “for which the Administrator has emissions information”) that EPA need not generate new emission information in establishing the existing source floor -- a meaningless provision if regulatory limitations are the exclusive means of developing floors. See CAA § 112(d)(3)(A).

Section 112(d)(3)(A) goes on to state that the performance of certain sources is not to be considered in establishing existing source floors. These are “those sources that have . . . first achieved a level of emission rate or emission reduction which complies, or would comply if the source is not subject to such standard, with the lowest achievable emission rate (as defined by section [171] of this title)<sup>3</sup> applicable to the source category. . . .” CAA § 112(d)(3)(A) (emphasis added). If only regulatory limitations could be considered, Congress would not have needed to refer to an “emission rate or emission reduction” -- terms referring to actual performance, not to regulatory limits. Similarly, if only regulatory limits could be considered, it would be equally pointless for Congress to refer to sources which “would comply if” they were subject to such a standard. Such sources could not be considered anyway because EPA would be limited to considering only regulatory limits.<sup>4</sup>

It is thus evident from the statutory text that Congress intended EPA to consider actual performance information. Not only is this the natural sense of the text, but all of the language just quoted largely becomes surplusage otherwise, against all normal tenets of statutory construction. See generally *Bailey v. United States*, 516 U.S. 137, 145-46 (1995).

The legislative history confirms that Congress intended the phrase “emission limitation” to refer to data on sources’ actual performance, not to regulatory limitations. The overarching requirement of section 112(d)(2) is that EPA adopt standards requiring “the maximum degree of reduction in emissions . . . achievable.” CAA § 112(d)(2). Although standards more stringent than the floor must take into account costs, non-air environmental impacts, and energy factors, Congress included the floor provision to ensure that standards would never be less stringent than the performance of some percentage of the best sources. Id.; 2 *A Legislative History of the Clean Air Act Amendments of 1990*, Comm. Print S. Prt. 103-38 (“Legislative History”) at 3352 (House Report). While both the House and Senate Committee versions of the bill initially required some consideration of cost in establishing floors, see id.

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<sup>3</sup> Clean Air Act section 171(3) states that “[t]he term ‘lowest achievable emission rate’ means for any source, that rate of emissions which reflects (A) the most stringent emission limitation which is contained in the implementation plan of any State for such class or category of source . . . , or (B) the most stringent emission limitation which is achieved in practice by such class or category of source, whichever is more stringent.”

<sup>4</sup> It is worth noting that where Congress intended to use a phrase defined elsewhere in the Act as a term of art (here, “lowest achievable emission rate”), it included a statutory reference to the appropriate definition. Congress included no such reference to section 302(k) when using the term “emission limitation.”

vol. 5 at 8509 (Senate Report), vol. 2 at 3352 (House Report), both Houses ultimately rejected this approach, adopting the present floor provisions out of concern that such consideration would “gut the standards . . . . There needs to be a minimum degree of control in relation to the control technologies that have already been attained by the best existing sources.” 2 Legislative History at 2897 (statement of Rep. Collins); see also 5 Legislative History at 7581 (Senate amendment to require a MACT floor for new and existing sources without reference to cost).

The phrase “emission limitation” was added to the statute as part of these floor amendments rejecting consideration of cost in making MACT floor determinations. Nowhere is there a hint that either the House or Senate intended by adding this language that the floor be based exclusively on regulatory limits. The Senate Committee bill’s floor provision required existing source floors to be as stringent as new source floors unless technically or economically infeasible, in which case the floor was to be the next “level of control achieved by existing sources in the category or subcategory beginning with the most stringent such level” determined to be “generally feasible and assur[ing] the maximum total reduction in emissions.” 5 Legislative History at 8081. In adopting the amendment eliminating consideration of cost and basing floors on the performance of best-performing sources, this provision was changed by the full Senate, which substituted the term “average emissions limitation achieved.” 5 Legislative History at 7581.<sup>5</sup> The House Committee version had referred to “emission controls achieved in practice.” 2 Legislative History at 3107. Before the full House, Representative Dingell offered an amendment eliminating consideration of cost as well as basing the floor on performance of the best sources, and in doing so substituted the phrase used by the Senate, “average emissions limitation achieved.” Id. at 2896. There is no explanation for the alteration of language, nor is there any evidence that anyone realized the language had been altered, or otherwise attached any import to the alteration. Rather, the evidence indicates that Congress always intended the MACT floor to reflect actual performance. See id. at 2898 (statement of Rep. Collins that the existing source floor would be “based on the cleanest sources”).

The Conference Bill adopted the current text of section 112(d)(3). The provision’s sponsor, Sen. Durenberger, explaining the provision in the Senate Debate, made clear that the existing source floor is to be based on sources’ performance, not on their permit limitations: “Subsection (d)(3) provides a floor for existing source MACT. The standard may not be less stringent than the average of the emission levels achieved by the best-performing 12 percent of the existing sources within the category.” 1 Legislative History at 870 (emphasis added).

The legislative history thus provides no explanation for why Congress selected the term “emission limitation,” gives no hint that the legislators even realized that “emission limitation” is a term of art, and indicates affirmatively that the language is meant to refer to sources’ actual performance, not to

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<sup>5</sup> As passed by the Senate, the bill referred to “emission limitation” rather than “emissions limitation.” 1 Legislative History at 1598.

their regulatory limitations. The legislative history thus confirms what the language of section 112(d)(3) already indicates: sources' actual performance is controlling.

The commenters' interpretation would also be inconsistent with the court opinions interpreting the requirements of section 112(d)(3). The D.C. Circuit has consistently held that EPA is to set MACT floors for both new and existing sources that "reflect what the best performing sources actually achieve . . . ." Cement Kiln Recycling Coalition v. EPA, 255 F.3d 855, 861 (emphasis added); see also National Lime Ass'n v. EPA, 233 F.3d 625, 632 (D.C. Cir. 2001) (method for setting floors must "reasonably estimate the performance of the relevant best performing plants") (emphasis added); Sierra Club v. EPA, 167 F.3d 658, 662 (D.C. Cir. 1999) (approach must "generate a reasonable estimate of the actual performance of the top 12 percent of units.") (emphasis added). A MACT floor based solely on permit limits with no regard to actual performance would be in direct conflict with the repeated holdings of the Court.

In fact, in Sierra Club, EPA itself defended the use of permit limits in determining the MACT floors for medical waste incinerators under CAA section 129.<sup>6</sup> Sierra Club, 167 F.3d at 661. In that case, EPA based floor limitations for existing sources on state permit data supplemented in some cases by "uncontrolled" data from sources not subject to regulatory limits. EPA argued that this approach was allowed by the statute, based on the definition of "emission limitation" in section 302(k), while the Petitioner argued that the permitting limits could not be considered at all because they were not data showing a source's performance. 167 F.3d at 661. The Court held, in language equally applicable here, that:

[t]he permissibility of EPA's approach does not turn on the applicability of section [302(k)], but on whether using the state regulatory data is a reasonable means of estimating the performance of the top 12 percent of MWIs in each subcategory. If using the state data is reasonable for this purpose, EPA does not need § [302(k)]; if using the state data is unreasonable, then EPA has conceded that § [302(k)] will not save its position.

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<sup>6</sup> Section 129(a)(2) states that for existing MWIs, "[e]missions standards . . . may be less stringent than standards for new units in the same category but shall not be less stringent than the average emissions limitation achieved by the best performing 12 percent of units in the category." This language is identical to section 112(d)(3), except that section 112(d)(3) has the parenthetical "(for which the Administrator has emissions information)," language which, as noted above, further demonstrates that EPA is authorized to consider actual performance, not just regulatory limits. Compare CAA § 129(a)(2) with CAA § 112(d)(3); see also National Lime Ass'n, 233 F.3d at 632 (finding the additional phrase in section 112 "says nothing about what data the Agency should use to calculate emission standards.").

Id. The Court furthermore rejected the argument that Congress had directly addressed the issue of whether use of regulatory data is mandated or not mandated. Id. Thus, in construing language in section 129(a)(2) of the Act, which is essentially identical to that in section 112(d)(3), the Court held EPA is not obligated to establish floors based on regulatory limits, and strongly intimated that to do so would be impermissible if the regulatory limits are not themselves a reasonable approximation of the actual performance of the average of the best performing 12 percent of sources. 167 F.3d at 661-62.

The remainder of the Sierra Club opinion likewise makes no sense if commenter's interpretation that "emission limitation" refers only to regulatory limitations were to be accepted. For example, the Court cautioned against using permit data that are not reasonable proxies of the performance of the average of the best performing units. The Court thus stated, in a passage precisely anticipating the present case, that if permit limitations are consistently higher (more lenient) than levels achievable by the best performing sources, the permit limitations would not be an accurate model of the sources' performance, and hence it would be improper to use those limitations to assess existing source floor levels. 167 F.3d at 661-62.<sup>7</sup>

In short, permitting and other regulatory limitations can be used as a "proxy" for the performance of the best performing 12 percent of sources, but such use is not compelled, and cannot be used where those limitations are not an accurate model of the sources' performance. Id. at 662. Here EPA reasonably declined to rely on such permit limits because they fail to reflect the superior performance actually achieved by the best performing 12 percent of sources.

#### B. Rubber Processing MACT

Comment: One commenter (IV-D-10) said EPA properly excluded rubber processing emissions from the MACT. The commenter agreed that HAP emissions from these operations result from various chemical and physical reactions, and no known substitutes exist for the basic ingredients in tire manufacturing. The commenter added that the HAP emissions cannot be effectively and economically controlled through the use of pollution control technology.

One commenter (IV-D-04) said EPA did not support its assertion that add-on control devices for rubber processing emissions are feasible but unreasonably expensive with any data or information. The commenter said the high volume low concentration (HVLC) emissions that are typical of these processes can be handled by a variety of off-the-shelf technologies. The commenter specifically indicated that concentrators combined with oxidizers are available, proven, and cost effective. The

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<sup>7</sup> If use of permit limitations is compelled, not only could their use never be improper, but there would have been no reason for the Court even to discuss the issue. Likewise, there would have been no reason for the Court's discussion of whether it was arbitrary for EPA to rely partially on data from uncontrolled sources, id. at 664, unless it was legally permissible for EPA to consider such non-regulatory data.

commenter attached a paper documenting these claims. The commenter was unaware of any technical issues that would preclude the use of this technology.

Response: EPA considered beyond the floor control options in establishing MACT for the rubber processing source category. However, based on information provided by industry, EPA concluded that the cost of add-on controls was too high to require them as the basis of the standard. For example, regenerative incineration would cost more than \$200,000 per ton of HAP controlled.<sup>8</sup> The industry cost analysis also considered the use of the concentrating wheel oxidation technology, but concluded that the gas flow rates in “this application” vary too widely to render a concentrating wheel economically feasible, except in case-by-case situations.<sup>9</sup>

EPA has reviewed information provided by the commenter to further evaluate the applicability of this technology to rubber processing operations.<sup>10</sup> The hybrid system incorporates a rotary concentrator with conventional oxidation (emission reduction) technology. The concentrator provides a mechanism to concentrate low organic concentration gas streams in order to make destruction or removal, for example, with a following oxidizer, a more cost-effective control technique. The technology has been used internationally and domestically, most recently in the semiconductor industry.

The commenter presents the result of the “hybrid” application to styrene emission control and testing conducted in 1988 at one reinforced fiberglass plant in North America. The reinforced fiberglass industry sheet molding compound machine is a continuous process. Specifically the machine is in continual production for the operating shift. In contrast, the mixing operations within the rubber tire industry are batch operations where components of the intended rubber compound are dumped into a mixer, mixed and dumped to a rolling mill. Emissions only occur during the kneading process of mixing in the rubber compound mixer. There are several minutes in the tire mixing process where there are no emissions due to the time between mixes.

The fiberglass operation involved a 50 parts per million by volume (ppmv) styrene concentration and 5,000 actual cubic feet per minute (acfm) exhaust. The “concentrator” captures approximately 96 percent of the organics, which results in an exhaust flow to the oxidizer approximately 10 times smaller, i.e., 500 acfm, to the thermal oxidizer. Thus a capture and control efficiency of

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<sup>8</sup>Memorandum from B. Friedman, EC/R, to T. Wayne, EPA/PPSG. June 8, 2000. Recommendation of the MACT Floor for Volatile Organic HAP Emissions from Rubber Processing in the Rubber Tire Manufacturing Source Category.

<sup>9</sup>Report: Rubber Tire Manufacturing Standard Economic Analysis. Page 3-6. May 1999. Prepared for the RMA by Dames & Moore.

<sup>10</sup>Memorandum from T. Wayne, EPA/PPSG to Project File. April 11, 2001. Review of Possible Control Technology Application To Rubber Tire MACT

approximately 94 percent (capture of 96 percent as tested coupled with a 98-percent oxidizer destruction efficiency) could be realized.

Typical median flow associated with rubber tire mixing (rubber processing) emissions is 235,000 acfm (5 to 6 mixers). This represents the flow for subsequent control. The per-mixer air flow rate is approximately 33,239 acfm, which is about 7 times higher than the hybrid application information. Relative emissions associated with the tire mixing model plant are approximately 0.006 pounds per minute. This level of emissions and flow are much smaller with higher volumes than the example in the paper provided by the commenter. Because typical oxidizers are designed for exhaust flows of 50,000 acfm or less, reducing the exhaust flow to approximately 23,500 acfm would allow for a single oxidizer design. Thus, using a concentrator to assist in lowering the amount of air flow to an oxidizer reduces the number of oxidizers forming the basis of our original \$226,000 cost estimate.

EPA roughly estimated the impact on the cost of the model facility by dividing the original cost estimate of \$226,000 per ton of emission reduction by 6 (the original cost analysis used 6 oxidizers to achieve the control of the exhaust and mixer configuration). The resulting value would be approximately \$40,000 dollars per ton of emission reduction.

Though this is a significant difference in the cost of controlling the organic emissions from tire processing mixers, it is still too high to be considered a beyond-the-floor technology for existing and new facilities. Moreover, the effectiveness of this technology is uncertain due to the non-continuous, batch operations at these units. Therefore, EPA has not revised its beyond-the-floor determination based on the use of this technology.

EPA also considered whether there are any pollution prevention controls or procedures that could establish MACT for the rubber processing source category. As described in the proposal preamble (65 FR 62425), HAP emissions associated with rubber compound processing result from the physical breakdown of polymers during the mixing, and chemical reactions that occur when elevated temperatures in mixing and milling affect the individual rubber compounds. The rubber compounds used in tires must meet certain characteristic properties to ensure attainment of technical specifications such as safety, performance, mileage and fuel economy. There are no known substitutes for the basic ingredients used to make the individual rubber compounds that would result in lower HAP emissions. In addition, because the emissions are a function of proprietary compounds designed to achieve specific product requirements and produce different tire types and tire components, the variation in emissions between plants is not something that EPA can use to distinguish less polluting compounds and practices. Therefore, there are no pollution prevention or work practice standards identified for rubber processing operations at this time.

### C. Tire Production MACT

Comment: Commenters (IV-D-10, IV-D-08, IV-D-09) said the two emission limitation options for the tire production subcategory are not equivalent, because Option 2 (production-based

option) is more stringent than Option 1 (HAP-constituent option). There is no justification for this disparity and the two options should be equivalent. Otherwise, Option 2 represents a beyond-the-floor requirement.

Even if EPA uses the general floor-setting methodology that RMA believes is illegal, (see section III.A), the commenter believes that EPA should set the emission limitation for cements and solvent in Option 2 at 0.000156 pounds emission HAP per pound of rubber processed (0.312 pounds HAP/ton rubber processed). This was the emission limit presented to RMA in April, 1999 as the average emissions of the five best performing sources.

Response: As described in the proposal preamble (65 FR 62426), Option 1 represents the MACT floor and MACT. EPA developed Option 2 to represent a second form of the emission limitation expressed in mass of HAP emitted per mass of rubber processed. Option 2 must be at least as stringent as Option 1, but is not required to be equivalent. Because the use of Option 2 is not required, it is not a beyond-the-floor requirement. Instead, it provides sources flexibility in how they meet the emission limitation.

Regarding the commenters' assertion that EPA should consider setting the emission limitation achieved by the best performing sources as presented to the industry in April 1999<sup>11</sup>, these limits were based on total HAP emissions from rubber processing and cements and solvents use as well as the 1999 version of the RMA database. That data base was updated prior to proposal, and rubber processing was established as a separate subcategory. Therefore, an analysis made using the 2000 database only for the cement and solvent usage subcategory would result in 0.00758 lb of "potential" HAP per ton of "potential" rubber processed, assuming the floor could be based on the five facilities with detectable HAP usage. However, EPA believes the rationale explained in the preamble for use of *de minimis* reportable threshold quantities of HAPs represents MACT and using these sources from the 200 database does not represent the best controlled sources. Option 2, therefore, is calculated to achieve at least the same *de minimis* levels of emissions of the MACT floor on a per ton of rubber processed basis.

Comment: Commenters (IV-D-10, IV-D-07, IV-D-08, IV-D-09, IV-G-01, IV-G-02) said EPA should set an emission limitation with a meaningful control technology option, because reformulation is not an option in all cases due to the need for extensive equipment modification and modernization and facility configuration and the extensive costs associated with such changes (likely exceeding \$50 to \$100 million per plant according to commenters). The allowable emission levels in Options 1 and 2 effectively rule out control devices as a compliance option due to achievable capture efficiency rates in the tire production industry.

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<sup>11</sup>Memorandum from C. Overcash, EC/R, and W. Sanford, Sanford Consulting, to T. Wayne, EPA/PPSG. April 27, 1999. Summary of April 14, 1999 meeting with Representatives of the RMA.

According to one commenter (IV-D-10), total permanent enclosures are inappropriate for use on process equipment because of worker access needs, drying time requirements, and space constraints. A realistic overall removal efficiency is 70 to 75 percent. Continued innovation and improvements in tire technology, including improvements in fuel economy, will achieve environmental benefits. Without the option of using pollution control equipment, this rule will stifle environmental and safety benefits.

One commenter (IV-D-08) added that existing control efficiencies would limit HAP content to a maximum of 5 percent. Because reformulation of all cements and solvents across all product lines is not feasible, meaningful options for controlling emissions must be available for those cements the industry cannot reformulate without compromising product quality.

Response: A central fact in EPA's response to these issues is that Option 1 is based on the MACT floor determination for tire production affected sources. Based on data provided by the RMA, EPA determined that emissions from these sources are controlled primarily through pollution prevention measures such as reformulation or other changes in process operations, which reduce or eliminate HAP. In fact, of the 41 reported existing tire production facilities, 11 reported no potential for HAP emissions from cement or solvent use above the Superfund Amendments and Reauthorization Act (SARA) de minimis reporting threshold limitations for HAP-containing compounds. Because there was no basis for further subcategorizing tire production sources, this level of performance represents MACT for all tire production affected sources.

Despite a MACT floor determination based on pollution prevention, the proposed emission limits were crafted to allow the use of add-on control technologies as a compliance option because EPA recognized that some existing facilities currently use them to control a portion of their emissions. EPA also wanted to allow all sources the flexibility to use add-on controls, as long as the MACT floor requirements were met, if they found them more attractive than pollution prevention measures in reducing emissions from certain operations. EPA believes the result is a meaningful control technology option. While most facilities would have to achieve some increased level of pollution prevention to comply with the final rule, they would have the option to use add-on controls on any of the emission sources at the facility to provide additional needed reductions. As described below, assuming that sources used add-on controls on all of the available emission sources, the additional pollution prevention reductions to meet the emission limits would range from 0 to 54 percent, with 27 percent as the average reduction. Given the tremendous strides in pollution prevention already achieved by the industry, EPA believes the NESHAP limits are achievable and that the control technology option is viable.

In addition to the cost estimate prepared for the final rule, EPA also conducted a theoretical cost analysis using more conservative (i.e., high-end) assumptions regarding the level of reformulation

and the probable capture efficiencies.<sup>12</sup> This theoretical analysis maximized the number of sources installing add-on control devices, reduced add-on control capture efficiencies, and determined solvent reformulation costs on a facility-specific basis. Table 2 presents the overall cost differences between the proposal cost estimates and these theoretical estimates for both new and existing sources.

TABLE 2. PROPOSAL COST ESTIMATE VS. THEORETICAL COST ESTIMATE

Cost Analysis Version	Annual Cost of Add-on Controls (\$/facility)	Number of Sources Implementing Add-on Controls	Total Add-on Control Cost (\$)	Total Annual Cost of Solvent Reformulation (\$)	Total Annual Cost (\$)
Proposal Cost Analysis	\$1,288,383	8	\$10,307,164	\$11,051,640	\$21,358,804
Theoretical Cost Analysis	\$1,288,383	26	\$33,497,958	\$1,559,887	\$35,057,845

The proposal control cost analysis assumed that 7 existing sources and 1 projected new source would install add-on control devices and determined solvent reformulation costs based on average model plant parameters, including the model plant HAP emission reduction necessary to meet the MACT floor level of control. The theoretical analysis used solvent reformulation estimations from the proposal control cost analysis for cost per ton HAP removed, but determined facility-specific costs based on HAP reduction needed to meet the floor. Solvent reformulation costs per ton HAP removed were used from the proposal cost analysis, as opposed to new costs generated on existing major source mean values because they resulted in a higher, more conservative cost.

The control costs were calculated for major sources only, using the Co\$t-Air Control Cost spreadsheet for regenerative thermal oxidizers<sup>13</sup> and engineering estimates. According to the RMA database, there are 31 tire production facilities that are major sources of HAP based on potential to emit. In order to generate a conservative estimate of control costs, EPA assumed that 25 of these facilities installed add-on control devices, 5 facilities are already meeting the standard, and 1 facility

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<sup>12</sup>Memorandum from B. Friedman, EC/R, and K. Holmes, EC/R, to T. Wayne, EPA/PPSG. April 5, 2001. Supplemental Control Cost Analysis for Tire Production in the Rubber Tire Manufacturing Source Category.

<sup>13</sup> The latest versions of the Co\$t-Air control cost spreadsheets can be downloaded from <<<http://www.epa.gov/ttn/catc/products.html#ccinfo>>>. These spreadsheets are derived from the OAQPS Control Cost Manual, Fifth Edition. EPA 450/3-90-006. January, 1996.

undertook solvent reformulation alone. This facility already has an existing add-on control device for HAP emission reduction and EPA assumed further add-on controls would not be installed. The analysis used a conservative estimate of feasible emission reduction from the installation of an add-on control device and determined if each facility could meet the MACT floor level of control with the add-on control alone. If a facility could not meet the floor level of control with the add-on control device alone, the analysis determined the amount of HAP reduction required to meet the floor through solvent reformulation in conjunction with the add-on control. Each of the 25 facilities installing add-on control devices also required solvent reformulation to meet the MACT floor level of control. The analysis also assumed that there would be 1 new facility in the next 3 years, and this facility would use add-on control/solvent reformulation to meet the standard.

The initial proposal cost analysis assumed 100-percent capture and 99-percent destruction efficiency from each process stream, excluding tank emissions. The process streams assumed to be controlled at the 99-percent level in the proposal cost analysis were 1) tread end cementing, 2) undertread cementing, 3) miscellaneous plant-wide cements and solvents, 4) cement house, 5) green tire spray, and 6) bead cementing. The theoretical analysis assumed that each of the 6 process streams controlled in the proposal cost analysis will still be controlled via an add-on control device. However, the associated capture efficiencies for these streams were assumed to be 85 percent for tread end cementing, undertread cementing, cement house, green tire spray, and bead cementing and 50 percent for miscellaneous plant-wide cements and solvents. These capture efficiencies were based on data received from RMA<sup>14</sup> and general engineering estimates. With these assumed capture and control efficiencies, to achieve an overall HAP emission reduction sufficient to meet the MACT floor level of control each facility installing an add-on control device must also reduce HAP emissions through solvent reformulation.

Based on this analysis, sources should be able to use add-on control technologies to achieve 46 to 100 percent of their needed emission reductions, with an average reduction of 73 percent. The resulting estimated amount of reductions needed from pollution prevention to make up the difference ranges from 0 to 60 tons per year, with an average reduction of 8.7 tons per year. However, the source representing the 60 ton per year “shortfall” can actually obtain over 70 percent of its total needed reductions using add-on controls. Alternatively, the source represented by the need to achieve the greatest percentage of its reductions using pollution prevention (54 percent), only has to achieve an additional reduction of 0.27 tons per year using pollution prevention. The EPA believes this analysis shows that the add-on control technology option will be technically viable for the majority of the industry.

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<sup>14</sup> Dames and Moore. RMA / Dames and Moore Report: Rubber Tire Manufacturing NESHAP Standard Economic Analysis. May 1999.

Even considering impacts based on these more conservative (higher end of range) assumptions, the final rule will not trigger the \$100 million significant rule criterion used by the Office of Management and Budget (OMB), let alone approach the estimate provided by one commenter of \$50 to \$100 million per plant to meet the emission limits.

D. Puncture Sealant MACT

Comment: One commenter (IV-D-10) said EPA overreached in establishing a new source standard that is more stringent than the existing source standard based on a single facility. EPA failed to conduct a “beyond the floor” analysis that includes the economic and technical feasibility to support its determination.

Response: EPA determined the new source MACT floor by looking at similar sources in other industries and found that similar sources are achieving better performance using the same technology currently used at the one existing puncture sealant source. Industries that emit volatile organic compounds (VOC) have extensive experience in using pollution control technologies to control the gaseous pollutants. Carbon adsorption, which is presently the control technology in place at the single existing puncture sealant application facility, can typically achieve greater than 90 percent efficiencies with inlet gaseous pollutant concentrations greater than a few hundred parts per million by volume (ppmv). At concentrations greater than 1000 ppmv, efficiencies can exceed 95 percent. The existing puncture sealant facility shows an inlet stream concentration of at least 1,400 ppmv. Use of combustion technologies, even at low pollutant concentrations (less than 100 ppmv), can generally achieve 90 to 95 percent destruction efficiency. At higher concentrations, destruction efficiencies of 95 to 98 percent are achieved.<sup>15</sup> Therefore, EPA believes that control devices at new facilities should be able to achieve at least 95 percent efficiency.

Because commenters raised cost concerns, EPA compared the cost of installing an 86-percent efficient control device to the cost of a 95-percent efficient control device at a new facility. Because the driving factor in the cost analysis is the airflow rate of the inlet stream, it actually costs less to install a 95-percent efficient carbon adsorber than an 86-percent efficient one. This is because both units would have the same total annual cost in the absence of recovery credits, but the more efficient device would achieve greater product recovery, which reduces the annual operating cost.<sup>16</sup> Therefore, even if the standard for new sources were considered a beyond-the-floor standard, the MACT determination would be the same.

Comment: One commenter (IV-D-10) said the rule should specify what type of emissions are to be reduced. EPA should specify that the puncture sealant regulation only applies to emissions of

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<sup>15</sup> Air and Waste Management Association. Air Pollution Engineering Manual. 1992, p. 15.

<sup>16</sup> Memorandum from B. Friedman, EC/R, to T. Wayne, EPA/PPSG. January 25, 2002. Cost Comparison of Carbon Adsorption Systems.

total HAPs from puncture sealant spray booth operations, but facilities may use measurements of total VOC as a surrogate for HAPs for compliance demonstration purposes, using EPA Method 25A. This change would be consistent with EPA's approach for tire production and tire cord production.

Response: The commenter's clarification is consistent with EPA's original intent, and EPA will revise Table 3, Emissions Limitations for Puncture Sealant Application Affected Sources, to require sources to "reduce spray booth HAP (measured as VOC) emissions...." The use of VOCs as a surrogate for organic HAPs is desirable for several reasons. The first is that the HAPs of concern (e.g., toluene, hexane, formaldehyde, methanol, and styrene) are themselves VOCs. The second is that many existing control devices have been designed and operated to control VOC emissions. EPA has assumed that the performance of these control devices with respect to VOC and organic HAP is equivalent because the organic HAP commonly used in this industry are also VOC. Finally, the test methods used (EPA Method 25 or 25A) are designed to measure total hydrocarbons (of which VOC are a subset). These methods are simpler to use than Method 18, which speciates HAP using gas chromatography. Method 18 imposes an unnecessary burden if measuring VOC is sufficient to demonstrate compliance.

#### E. Beyond the Floor Options for Other Affected Sources

Comment: One commenter (IV-D-04) said EPA should consider the use of oxidizers, especially catalyst systems, as beyond-the-floor technologies in this industry. Tire cord facilities have been using catalytic systems since the 1970's and advancements in the technology make it a candidate for the tire manufacturing industry. The commenter said the proposal underestimates the destruction efficiencies being achieved by control technologies and subsequently overestimates the cost per ton of emissions control. EPA's brief discussion of control devices does not indicate a percent control efficiency for any of the sources, much less the best performing facilities.

Response: Prior to proposal, EPA calculated the cost of meeting the tire production emission standard using a regenerative thermal oxidizer (with a 99-percent removal efficiency and 95-percent heat recovery) at a model tire production facility.<sup>17</sup> Based on this analysis, the cost per ton of HAP removed was \$12,513. As a beyond-the-floor technology option, these costs were determined to be unreasonable. However, EPA reviewed the background technical information regarding the use of catalytic oxidizers as a viable control technology in this industry. According to industry analyses, they represent an available control technology for application to the exhaust from the tire manufacturing process.<sup>18</sup> Therefore, EPA calculated the cost per ton of HAP removed for the model facility based on the use of a catalytic oxidizer (with a 99-percent removal efficiency and a 70-percent heat recovery).

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<sup>17</sup>Memorandum from B. Friedman, EC/R, and H. Brown, EC/R, to T. Wayne, EPA/PPSG. June 7, 2000. Control Costs for Tire Production in the Rubber Tire Manufacturing Source Category.

<sup>18</sup>Report: Rubber Tire Manufacturing Standard Economic Analysis. Page 3-6. May 1999. Prepared for the RMA by Dames & Moore.

This cost was \$21,030 per ton of HAP removed. Costs were higher due to less heat recovery (70 percent from the catalytic system vs. 95 percent from the regenerative system) and the added capital costs.<sup>19</sup>

EPA also calculated the cost of meeting the tire cord production emission standard using a regenerative thermal oxidizer (with a 98-percent removal efficiency and a 95-percent heat recovery ) at a model tire cord production facility.<sup>20</sup> Based on this analysis, the cost per ton of HAP removed for new and existing sources was \$67,600. As a beyond-the-floor technology option, these costs were determined to be unreasonable. As described above, EPA also calculated the cost of meeting the standard using catalytic oxidation technology (with a 98-percent removal efficiency and a 70-percent heat recovery). The cost per ton of HAP reduced is \$101,000 for an existing tire cord production model plant.<sup>21</sup>

EPA considered the beyond-the-floor costs of requiring incineration in place of carbon absorption for the puncture sealant source. This cost was calculated to be approximately \$28,500 per ton of emission reduction per year. Since EPA has information on only one puncture sealant affected source, EPA used the information provided for that source in looking at the beyond-the-floor option of incineration. EPA determined that the beyond-the-floor incineration option was unreasonable because the existing affected puncture sealant emissions are vented at a low air flow rate of approximately 3,000 cubic feet per minute. EPA determined that it would be unreasonable to require the replacement of the carbon adsorption system by incineration technology for the puncture sealant operation alone.

EPA concluded that the final rule did consider the use of oxidation technologies and explicitly allows their use at all affected sources due to the format of the standards.

#### F. Universal Certification Alternative

Comment: Commenters (IV-D-10, IV-D-07, and IV-D-08) said EPA should create an alternative standard (and associated compliance procedures) for tire cord production and/or puncture sealant operations that would allow facilities to meet the standard by certifying annually that formulations used in such operations are less than 1% HAP or 0.1% of those HAPs specified in Table 16 of the proposed rule. This would encourage pollution prevention. It would then be necessary to revise the related compliance provisions to implement this approach.

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<sup>19</sup>Memorandum from B. Friedman, EC/R, and K. Holmes, EC/R, to T. Wayne, EPA/PPSG. May 15, 2001. Comparison of Regenerative Thermal Oxidation (RTO) v. Catalytic Oxidation (CO) Costs for the Rubber Tire Manufacturing Source Category.

<sup>20</sup>Memorandum from B. Friedman, EC/R, and H. Brown, EC/R, to T. Wayne, EPA/PPSG. June 7, 2000. Control Costs for Tire Cord Production in the Rubber Tire Manufacturing Source Category.

<sup>21</sup>See footnote 13.

One commenter (IV-D-07) added that the entire tire cord treating industry segment is very small in relationship to the other “MACT” categories. All tire cord treating facilities use aqueous-based dip solutions that are already very low in total HAP content. As these solutions are applied to the tire cord fabric, they react further, and prevent the release of some of those HAPs. This further minimizes HAP emissions, which provides additional support for an alternative approach that allows sources to certify formulations based on HAP content.

Response: For tire production operations, this option is referred to as the constituent option. EPA agrees with the commenters that providing a similar option for tire cord producers and puncture sealant operations would encourage pollution prevention. Demonstrating compliance with a constituent option would require additional emission reductions beyond those required by the MACT, but since its use would be optional it would not constitute a beyond-the-floor requirement. However, EPA believes that its use will be limited to a monthly compliance alternative (similar to rows 2 and 3 of Table 1 of subpart XXXX as proposed), as the annual alternative (row 1 of Table 1 of subpart XXXX) is limited to purchased coatings. Most, if not all, tire cord manufacturers mix their coatings on-site, which would require the use of the monthly compliance demonstration. EPA will revise the final rule to add these compliance options.

#### IV. COMPLIANCE DEMONSTRATION ISSUES

##### A. Role of Method 311 in Compliance Demonstrations

Comment: One commenter, (IV-D-03) requested that EPA clarify that an individual Method 311 test is not required for every batch of solvent or cement. Instead, EPA should clarify in the final preamble that tire production facilities may rely on information about HAP content provided to them by their supplier, as long as their supplier conducts periodic testing (based on Method 311) to ensure that its products meet sales specifications for HAP content. In most cases, solvent producers will simply ensure that the HAP content is below the *de minimis* RCRA reporting threshold for SARA Title III. Where a solvent may contain a HAP at a level above the applicable thresholds, the solvent supplier simply certifies that it will not exceed a certain concentration. The tire production facility can then use this “not-to-exceed” level in determining compliance.

Other commenters (IV-D-10, IV-C-2, IV-D-08, IV-D-09, IV-G-01) suggested that the rule allow for formulation data (material safety data sheets (MSDS) and certificates of compliance) to be used in lieu of Method 311 testing. One commenter (IV-D-10) said EPA has used this approach in MACT rules for metal coil coating and large appliances. These rules specify that if there is a conflict between formulation data and Method 311, the latter governs. Another commenter (IV-D-08) added that use of the MSDS to screen products for HAP content will eliminate testing of hundreds of non-HAP containing materials.

Response: EPA reviewed the use of Method 311 in other recent coating standards proposed or promulgated by the Agency. In order to be consistent with these standards and minimize the need for

individual facilities to develop alternative methods if they do not choose to use Method 311, EPA agrees with the commenters to add flexibility to the process of certifying HAP contents of materials used in the tire manufacturing industry. See §§63.5994(a)(1), 63.5997(a)(1), and 63.6000(c).

Specifically, the reference test method for measuring the HAP content of tire manufacturing cements, solvents, and coatings will continue to be EPA Method 311 (analysis of Hazardous Air Pollutant Compounds in Paints and Coatings by Direct Injection Into a Gas Chromatograph). This is an established method that is appropriate for measuring the types of HAP used in these materials. Sources may use alternative methods that EPA approves for measuring HAP content.

The final rule will not require a compliance test for HAP content, nor will it require a source to test every shipment of materials it receives. However, the source will be responsible for verifying, by any reasonable means such as periodic testing or manufacturer's certification, the HAP content of the materials used at the facility. EPA may require the source to conduct a test at any time using EPA Method 311 (or an approved alternative method) to confirm the HAP content reported in the compliance reports. If there is any inconsistency between the results of EPA Method 311 test and any other means of determining HAP content, the Method 311 results will govern.

Comment: Commenters (IV-D-03, IV-D-10) said the final rule should clarify the compliance demonstration does not need to be used to determine the precise HAP content of the tested material, so long as it is within the *de minimis* reporting threshold discussed in the proposed rule (0.1 percent for certain listed HAPs and 1.0 percent for other HAPs.) These issues are important because solvents and other chemicals are sold to meet minimum purity levels, which allows the manufacturer to avoid testing every single lot. According to the commenters, several other regulatory programs have embraced the *de minimis* concept.

Response: The revised rule language allowing "other reasonable means" to determine HAP content will provide this flexibility.

#### B. Method 311 and Coating Preparation Stages

Comment: One commenter (IV-D-02) asked EPA to clarify whether the Method 311 test should be performed after the coating is mixed, reacted, and aged, which would not account for the HAPs emitted from the mixing process. However, if the sample were collected from the mix tank after the addition of all the chemicals, but prior to subsequent processing, the analysis would overestimate the overall HAP emissions from the affected source. This is because tire cord coatings ("dip formulations") commonly react during the mixing and storage operations. During these reactions, a HAP such as formaldehyde cross-links the polymers contained in the dip formulation. After this cross-linking reaction occurs, the chemical is unavailable to be released as an air emission during subsequent processing steps. For formaldehyde, the chemical conversion rate typically equals or exceeds 99 percent.

Response: At proposal, EPA assumed that the amount of HAP used in the tire cord production process would equal the amount of HAP emitted. EPA also assumed sources would document their material balances using records of the HAP contents of raw materials delivered to the mixing process. Alternatively, sources could sample the coating mixture to verify HAP content. Based on comments, it appears the issue of reactive coatings is significant for tire cord production. However, the commenters' solution to only address post-mixing HAP would ignore potential fugitive emission losses from mixers.

EPA will still assume in the final rule that sources will base their material balances on the assumption that 100 percent of the HAP added to the coating mixture is emitted. However, sources will be allowed to account for HAP "losses" resulting from chemical reactions, e.g., curing or post-application reactions. Sources can calculate these losses based on the conversion rates of the individual dip formulations, chemistry demonstrations, or other demonstrations that are verifiable to the approving agency. Sources may then use the revised value in their compliance demonstrations. EPA will change the final rule to add these provisions. See §63.5997(a)(2).

#### C. Tire Production Compliance Equations

Comment: Commenters (IV-D-10, IV-D-08) said equations 1 and 2 in §63.5994(b) are inappropriate as applied to Option 2 in the Tire Production subcategory. They noted the following problems:

- Equation 1 requires HAP information in terms of *specific* HAP, while Option 2 appears to provide an emission limitation in terms of *total* HAP.
- The substitution of RMASS for TMASS terms will not work because TMASS is in grams and RMASS is in megagrams.

One commenter (IV-D-08) said similar changes are needed in the tire cord production equations.

Response: EPA agrees that the proposed equations 1 and 2 in §63.5994(b) are inappropriate as applied to Option 2 in the Tire Production subcategory. Additional equations have been added in the final NESHAP in §63.5994(c) to provide an emission rate calculation in terms of total HAP. Similar equations have also been added to the tire cord production (§63.5997(c)) and puncture sealant subcategories (§63.6000(d)).

Comment: According to commenters (IV-D-10, IV-D-08), the proposed requirement to "determine your quantity of rubber processed into tires (megagrams) by accounting for the total mass of rubber that enters all processes subsequent to the mixing process" is ambiguous and could result in multiple counting of the same rubber, if it were counted each time it entered a process subsequent to the mixing process. One commenter (IV-D-10) suggested the following language for §63.5994(c)(2):

*Quantity of rubber processed into tires.* Determine your quantity of rubber processed into tires by accounting for the total mass of rubber that is cured into tires, plus the total mass of rubber that is disposed of as scrap rubber.

Response: EPA agrees that the proposed requirement could be read to result in multiple countings of the same rubber, which was not EPA's intent. As proposed, EPA's assumption was that sources would only count the rubber at the time it exited the mixing process and was used. The commenter's definition is broader than this intent, because it would add scrap rubber into the denominator value of the compliance equations, thereby decreasing the resulting calculated emissions. Instead, EPA has clarified §63.5994(c)(2) to say that the obligation is to determine the quantity of rubber used (megagrams) by accounting for the total mass of mixed rubber compound that is delivered to the tire production operation. This change clarifies that the rubber should be counted at the point of use. EPA also will replace the proposed definition in §63.6015 of "rubber processed" with a definition of "rubber used" that includes the total mass of mixed rubber compound delivered to the tire production operation in a tire manufacturing facility (e.g., the collection of warm-up mills, extruders, calendars, tire building, or other tire component and tire manufacturing equipment).

#### D. Tire Cord Production Compliance Equations

Comment: According to commenters (IV-D-10, IV-D-07, IV-D-08, IV-D-09, IV-G-01), the equations in §63.5997 assume a simple mass balance can be used to determine emissions. However, this is based on an erroneous assumption that HAP materials introduced into the dip mixing operations equal HAP emissions, or HAP emissions prior to controls. One commenter (IV-D-10) described the typical mixing process and the chemical reactions that occur in the dip prior to the saturators. EPA should revise the definitions of "HAP<sub>i</sub>," "HAP<sub>j</sub>," and "HAP<sub>k</sub>" to specify that they are the mass percent of the HAP in the coating as it is used in the saturator after any reactions have occurred. These percentages can be calculated by the facility based on the conversion rates associated with the facility's individual dip formulations.

One commenter (IV-D-02) said the definition of the "HAP<sub>i</sub>" in equations 1 and 2 in §63.5997 in the proposed rule should be revised to replace the words "as purchased" with "present" or add the words "or present." If the intent is mass percent of HAP in the raw materials, the commenter asked that the emission determination procedures be revised to address HAPs in the mixing process that are not emitted in subsequent unit operations.

Response: The commenters' solution to only address post-mixing HAP would ignore potential fugitive emission losses from mixers. Section 63.5997(a)(2) of the final rule will instead allow sources to account for HAP "losses" resulting from chemical reactions in their compliance demonstrations.

Comment: One commenter (IV-G-01) suggested EPA establish separate mechanisms that distinguish between whether or not a control device is used. The commenter agrees an equation can address situations where control devices are not used. However, the commenter said operational

differences in the way that different facilities use control devices precludes the use of a single equation upon which to demonstrate compliance. Instead, the commenter recommended EPA list guidance criteria for use by affected sources and permit writers to develop a site-specific equation to demonstrate compliance when using a control device. The commenter provided the following criteria:

- Total fabric process, total coatings used, number of coatings used and total mass of HAP emitted should be reported on a monthly basis.
- Mass fraction of HAP should be calculated as applied to the fabric at the saturator, determined by manufacturers or supplier information and calculation of chemical reaction yield prior to application, or by use of method 311.
- Compliance equations must allow for calculations of emissions from combination of controlled and uncontrolled zones of tire cord treating lines.
- Control device efficiency should be determined by measuring the total mass rate of HAP at inlet and outlet of control device during a performance test (performance test conducted using mass percent HAP representative of coatings typically used at the tire cord production affected source, whole number percent).
- Overall control efficiency should be determined by calculating the ratio of the total mass of HAP destroyed by the control device (total mass HAP at inlet - total mass at outlet) and total mass of HAP emitted from dip (product of mass fraction HAP and total coatings used.)

Response: As described in EPA's responses to other comments on the tire cord production compliance equations, EPA has incorporated many of the features requested by the commenter into the final equations. With these changes and other clarifications, EPA believes that sources using control devices are capable of using the required equations to demonstrate compliance. However, in cases where there are unique situations at a given source, the source may request an alternative means of demonstrating compliance under the part 63 General Provisions (§63.6(g)).

Comment: One commenter (IV-D-02) said the "coating used" concept may not take into account off-specification batches that are made and not applied. The commenter asked that EPA clarify the term "TCOAT<sub>i</sub>" to address this issue.

Another commenter (IV-D-10) said some tire cord treating facilities mix dip formulations for use at other plant locations. Therefore, the rule should clarify that the terms "TCOAT<sub>i</sub>," "TCOAT<sub>j</sub>," and "TCOAT<sub>k</sub>" should only include the mass of coatings that actually are applied to the fabric at the subject facility.

Response: EPA did not intend for sources to include off-specification batches in their compliance demonstrations and will clarify the "TCOAT" definitions in the final rule. EPA also agrees that a plant should exclude coatings made for other plants from the source plant's material balance and will clarify the TCOAT definitions to explain this.

E. Puncture Sealant Application Compliance Alternative

Comment: In order to encourage source reduction and pollution prevention, one commenter (IV-D-10) asked EPA to create a compliance option in the puncture sealant application subcategory that would allow facilities to show compliance by demonstrating reductions of 86 percent through formulation changes. The corresponding compliance demonstration requirements would need to be revised.

Response: Such a compliance demonstration is likely to require case-specific information. Owners or operators can always use the provisions in §63.6(g) of the part 63 General Provisions to request the use of an alternative emission standard. As described in response to the comment in III.F regarding the use of a universal certification alternative, EPA will add an optional emission limit based on the use of complying coatings to the puncture sealant emission standards in Table 3 of the final rule.

F. Correcting Deviations without Penalty

Comment: One commenter (IV-D-10) noted that §63.5990, which requires facilities to be in compliance with MACT standards at all times, regardless of whether a source is using control equipment to comply, fails to recognize that several factors make it almost inevitable that the source's emissions will exceed the standards at times. Instead, sources should be given a chance to quickly correct a deviation from their operating parameter limits before a violation is registered. This encourages quick action and is appropriate because emissions may be underneath the regulatory limit even though the parameter limit is exceeded. No violations would occur in these circumstances. This approach is consistent with the CAM rule and the wool fiberglass MACT.

Response: The monitoring provisions in the final rule will require a source to establish an individual operating limit (or operating parameter value) based on a site-specific performance test. Once established, the source should have the ability to operate as far as desired and/or necessary on the compliance side of the operating parameter.

The length of the averaging time for the associated emission limit is another variable that affects the likelihood of deviations. For example, cases in which the monitoring data are used to demonstrate instantaneous compliance are more likely to create the exceedances suggested by the commenters. This will not be the case in the final rule. Puncture sealant affected sources meeting the overall control efficiency compliance option are subject to operating limits based on a 3-hour averaging period. Tire producers, tire cord producers, and puncture sealant applicators choosing to comply with one of the monthly average compliance options have a month in which to ensure that deviations from control device monitoring parameters do not affect their overall compliance status. In summary, EPA believes the final rule is based on parameters and averaging times that allow a conscientious operator to remain in compliance with the standards. Therefore, EPA has not made the changes suggested by commenters.

G. Startups, Shutdowns, and Malfunctions

Comment: According to one commenter (IV-D-10), Table 17 of the proposal indicates that the 40 CFR part 63, subpart A General Provisions requirements regarding startups, shutdowns, and malfunctions (§63.6(e)(3) and (f)(1)) do not apply to sources complying with the standards that choose to use control devices. The commenter cites precedents regarding the need for “achievable” standards. The rule should be revised to indicate that these sections do apply to facilities complying through the use of control devices.

Response: EPA agrees that puncture sealant affected sources that are subject to operating limits should be allowed to use the startup, shutdown, and malfunction provisions, and will correct this oversight for the final rule. EPA separately considered whether to extend these provisions to tire production, tire cord production, and puncture sealant affected sources complying with the monthly average compliance options because compliance with the monitored parameter is only a trigger that determines whether the source can use the established emission reductions of the capture and control system in the compliance demonstration. Because the overall compliance demonstration is based on a month’s worth of data, EPA considered whether the startup, shutdown, and malfunction provisions were needed to ensure an achievable standard. EPA determined that for sources relying heavily on the use of control equipment to meet the overall emission limit, the inability to exclude periods of startups, shutdowns, and malfunctions from the compliance demonstration could increase their risk of failing to comply with the emission limit. Therefore, EPA will write the final rule to add the startup, shutdown, and malfunction provisions for sources complying with the use of control devices.

#### H. Minimum Data Collection Requirements

Comment: One commenter (IV-D-10) said the proposal fails to allow for the loss of even minimal amounts of test or monitoring data when sources are complying by using add-on control devices. The commenter suggested EPA add provisions similar to that found in the municipal waste combustor MACT standards issued under section 129 of the CAA.

Response: EPA agrees with the commenter that the final rule should provide information on how to conduct compliance demonstrations, particularly with respect to minimum data requirements. The proposed rule was silent on minimum data requirements. The tradeoff is that the monitoring system should be optimized to limit occurrences when data collection is jeopardized because of system faults and failures. Therefore, EPA will clarify the final rule to establish reasonable minimum data collection requirements, implemented through the use of a site-specific monitoring plan designed to optimize system performance.

Section 63.5995(a) of the final rule will require sources, for each operating parameter they monitor, to install, operate, and maintain each continuous parameter monitoring system (CPMS) according to the requirements in the following requirements:

- Operate CPMS at all times the process is operating.
- Collect data from at least four equally spaced periods each hour.

- For at least 75 percent of the hours in a 24-hour period, have valid data (as defined in the site-specific monitoring plan) for at least four equally spaced periods each hour.
- For each hour of valid data from at least four equally spaced periods, calculate the hourly average value using all valid data.
- Calculate the daily average using all of the hourly averages
- Record the results for each inspection, calibration, and validation check as specified in the site-specific monitoring plan.

For each monitoring system required, develop and submit for approval a site-specific monitoring plan that addresses the following requirements (§63.5990(e)):

- Installation of the CMS sampling probe or other interface at a measurement location relative to each affected process unit such that the measurement is representative of control of the exhaust emissions (e.g., on or downstream of the last control device)
- Performance and equipment specifications for the sample interface, the pollutant concentration or parametric signal analyzer, and the data collection and reduction system
- Performance evaluation procedures and acceptance criteria (e.g., calibrations).

The plan must also address the following ongoing procedures (§63.5990(f)):

- Ongoing operation and maintenance procedures in accordance with the general requirements of §§63.8(c)(1), (3), (4)(ii), (7), and (8), and 63.5990.
- Ongoing data quality assurance procedures in accordance with the general requirements of §63.8(d).
- Ongoing recordkeeping and reporting procedures in accordance with the general requirements of §63.10(c) and (e)(1) and (2)(i).

#### I. Performance Test Frequency

Comment: One commenter (IV-D-10) said it would be arbitrary and capricious to require tire manufacturers to conduct follow-up tests every year when similar testing is required much less frequently or not at all in other rules. The commenter suggested a 5-year interval instead.

Response: EPA reviewed several other recent NESHAP regarding their requirements for subsequent performance tests. In order to be consistent with the general trends regarding this testing, EPA will revise §63.5992 of the final rule to require testing at least every 5 years.

### V. NOTIFICATION, RECORDKEEPING, AND REPORTING

#### A. Monthly vs. Daily Records

Comment: Several commenters (IV-D-10, IV-D-07, IV-D-08, IV-D-09, IV-G-01) recommended specifying that monthly averages should be based on monthly inventory and usage records. The proposal to require daily records of many parameters (control devices are the exception)

is inconsistent with the requirement for a monthly average, very burdensome, and would not serve any environmental purpose. Use of monthly data would eliminate the need for equation 3 in §§63.5994(b)(4) and 63.5997(b)(3) (as proposed). Monthly records also are consistent with other MACT standards, and it would be arbitrary and capricious to single out the tire manufacturing MACT standards for daily recordkeeping when (1) it is unnecessary to show compliance with a monthly averaging period, and (2) other similar standards only require monthly recordkeeping. The equations that reference daily amounts should be revised to replace the terms with monthly values.

One commenter (IV-D-08) explained that monitoring cement and solvent flow through the plant's central dispensing area on a monthly basis is less burdensome than a daily system. The accuracy of a monthly system is significantly better than individual measurements of hundreds of containers on a daily basis. Inherent to a daily system will be an ultimate comparison to monthly dispensing/purchasing records to validate the data gathered through daily measurements.

Response: EPA believes commenters have overstated the need for complex recordkeeping systems to implement the proposed rule. For example, EPA envisioned that sources would monitor daily flow of cements and solvents through one or two central locations instead of at the point of use. However, upon consideration, EPA agrees with the commenters that a monthly system of cement, solvent, and coating use is sufficient to demonstrate compliance with the emission limitations. Therefore, EPA will revise the final rule to implement a monthly system. This change simplifies the compliance equations and should reduce recordkeeping burden without compromising compliance assurance.

Comment: One commenter (IV-D-10) said EPA should define the term "monthly operating period" as a "calendar month or a pre-specified period of 28 or 35 days (utilizing a 4-4-5 week recordkeeping and reporting schedule.) This definition is consistent with the NSPS for tire manufacturing and would streamline reporting requirements between the two regulations.

Response: The NSPS is based on an entirely different compliance scheme than the NESHAP. The NSPS is based on a coating limit and was tied to tire production schedules reported by the industry at the time the NSPS was developed. The NSPS also identified the uncontrolled emission limitations depending on the duration of the compliance period, i.e., 28 days, 29 days, etc. In contrast, the NESHAP is based on an overall monthly average determined by the number of operating days in the month. In some cases, this could be 31 days and in other cases it may only be a few days. Because of these differences, EPA believes it is not reasonable to make the definitions the same.

#### B. Monitoring Thresholds

Comment: Commenters (IV-D-10, IV-D-08) said EPA should eliminate monitoring requirements for tire production sources that are complying with the purchase alternative. Purchase records, along with the required certifications, should be sufficient to demonstrate compliance. These

provisions should also apply to tire cord production sources and puncture sealant application sources that use the certification alternative recommended by the commenter.

Response: As described in IV.A, EPA will clarify the role that Method 311 plays in compliance determinations. This change will allow sources to comply with the purchase alternative by using purchase records and “other reasonable means” to document the HAP content of the purchased materials. EPA’s response to the universal certification alternative is found in section III.F.

## VI. EMISSIONS ESTIMATES

Comment: One commenter (IV-D-10) said the proposal preamble contains incorrect statements regarding the percentage of HAP emissions from the various source categories. They added that EPA should calculate emission percentages based on all four subcategories in the rule.

Response: The proposal package distinguished between “potential” emissions and “actual” emissions in several places. While EPA was careful to specify the basis of each number (e.g., potential emissions vs. actual emissions), casual readers could erroneously add unlike terms and arrive at different percentages. This may have happened to the commenter. The percentages EPA cited for rubber processing actual emissions (46%) compared to tire production cement and solvent use actual emissions (54 %) are correct.

Per the commenter’s suggestion, following is a table that summarizes emissions by subcategory:

TABLE 3. HAP EMISSIONS ASSOCIATED WITH THE FOUR TIRE MANUFACTURING SUBCATEGORIES (1996 DATA)

Subcategory	Actual HAP Emissions (tons/year)	Percentage
Rubber Processing	914	43.6
Tire Production	1063	50.8
Tire Cord Production	100	4.8
Puncture Sealant	17	0.8
Totals	2094	100.0

Comment: One commenter (IV-D-04) noted that EPA states that cement and solvent use in the tire manufacturing industry results in 1,411 tons of HAP emissions each year and proposes MACT floor reductions of 1,047 tons/year and beyond the floor reductions of 1,067 tons/yr. Even at 90

percent control, it appears that there is at least another 200 tons/year of HAP emissions that are not controlled by the proposal. The commenter requested clarification of how these additional emissions are addressed by the proposal.

Response: The 1,411 tons/year HAP value represents potential HAP emissions from cement and solvent use. The MACT reductions are based on “actual” reductions. Using the Option 1 emission reduction analysis, actual HAP emissions are estimated at 1,063 tons/year and the estimated emission reduction is 1,047 tons/year, for an overall 98.5 percent emission reduction (higher if only sources required to reduce emissions considered.)

## VII. COST IMPACTS

### A. Daily Recordkeeping Cost Impacts

Comment: Commenters (IV-D-10, IV-D-08) said EPA has understated the cost impacts of the rule by failing to incorporate costs associated with creating systems to track daily material usage. One commenter (IV-D-10) said EPA improperly sidestepped subjecting this rule to OMB review. The commenter (IV-D-10) included estimated cost impacts of using these systems, a description of the scope of their use, and an estimate of the burden associated with obtaining statistically accurate and reliable results. The commenter estimated that upgraded computer systems would cost the industry \$114 to \$190 million dollars in addition to costs to upgrade data reading and recording devices (\$30,000 to \$80,000 per facility), plus the labor to collect the information (\$50,000 per year per facility). Additional training, permitting, and other costs would also be incurred. The commenter said monthly inventory monitoring would cost roughly half as much as daily monitoring, and the resulting records would be more easily maintained and provide the same result.

One commenter (IV-D-08) said monthly recordkeeping could be accomplished using systems currently in place, coupled with purchase and production records already kept.

Response: EPA cost and economic impacts were prepared based on analyses conducted prior to proposal, which are located in the project docket. Based on these analyses, it was determined that the rubber tire manufacturing NESHAP is not a significant regulatory action under Executive Order 12866 and therefore did not require OMB review. EPA reviewed these impacts prior to promulgation of the final rule and came to the same conclusion.

As described in section V.A, EPA determined that the commenters are correct that monthly recordkeeping will be sufficient to demonstrate compliance with the final standards. We will revise emission calculations in the compliance demonstration equations in §§63.5994, 63.5997, and 63.6000 to require the collection of monthly data. Therefore, the commenters’ concerns that daily recordkeeping would be extremely burdensome should be relieved.

In any case, EPA disagrees with the commenter's assumption that the industry would need to spend up to \$30,000 to \$80,000 per facility to perform daily recordkeeping. EPA also believes that the commenter misinterpreted the recordkeeping requirements to require tracking cement, solvent, and coating use at every single step in the process. Instead, they should be able to monitor one or two central locations (e.g., amount of coating leaving mix area, amount of solvent distributed from storage), which will significantly reduce costs.

**B. Cost Impacts of Reformulation**

Comment: One commenter (IV-D-09) was concerned that EPA presented the proposed standard as a nonsignificant regulatory action under Executive Order 12866, when it may force technology developments that are not incorporated into the analysis presented. There are HAP-containing cements and solvents remaining at certain plants and processes because reformulation efforts have not developed alternatives with equal or superior performance given the manufacturing technology present at that plant. The lack of a meaningful control technology option will force technology updates to comply with the standards, and this cost has not been addressed in the economic evaluation. This cost will certainly exceed the OMB \$100 million review level. The commenter has undertaken this type of modernization within the past 2 years. Based on this experience, costs of \$50 million to \$100 million per plant is not unusual for technologically advanced tire building equipment needed to accommodate reformulation or elimination of HAPs. The commenter said EPA must either develop an attainable emission control technology option or present the proposed rule to OMB for review as a significant regulatory action.

Response: See section III.C. of this document for EPA's response to commenters' concerns about the viability of a emission control technology option. Regarding the cost impacts cited by the commenter, EPA notes that the commenter did not provide any documentation for these costs. However, it seems likely that any plant undertaking that level of investment would be doing so not just to address emissions from the facility but more likely in order to achieve certain cost savings or increases in productivity.

EPA did evaluate the cost impacts of the proposed rule and documented its findings that the resulting costs did not constitute a significant regulatory action. At proposal, EPA calculated the cost impacts for reformulation at tire production facilities using information provided by the RMA.<sup>22</sup> The impacts included company-wide costs of reformulation research and development in addition to solvent substitution costs. For the model plant that was used to estimate costs, the compliance cost for reformulation was \$5,370 per ton of HAP removed.

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<sup>22</sup>Memorandum from B. Friedman, EC/R, and H. Brown, EC/R, to T. Wayne, EPA/PPSG. June 7, 2000. Control Costs for Tire Production in the Rubber Tire Manufacturing Source Category.

In the case of tire cord production, EPA was unable to evaluate the costs of reformulating coatings, because this information is highly proprietary and was not provided to EPA.<sup>23</sup> Instead, EPA based nationwide control costs on the costs of achieving the needed reductions using add-on controls. For an existing source (model plant), those costs are \$66,900 per ton of HAP removed.

Total nationwide cost impacts of the proposed rule were \$25,844,000<sup>24</sup>, which is less than the \$100 million threshold for a significant regulatory action.

As described in section III.C, even considering impacts based on more conservative (higher end of range) assumptions, the final rule will not trigger the \$100 million criterion used by OMB, nor the commenter's estimate of \$50 to \$100 million per plant to meet the emission limits.

## VIII. OTHER

### A. Extension of Comment Period

Comment: Commenters (IV-D-05, IV-D-10) requested that EPA extend the comment period from October 18, 2000 to January 25 or 26, 2001.

Response: Although EPA did not grant a formal extension to the public comment period, it did agree to consider comments submitted through January 26, 2001 in developing the final rule.

### B. Definitions

#### 1. Cements and Solvents

Comment: Consistent with a comment to clarify that the applicability of the rule does not extend to certain maintenance solvents, one commenter (IV-D-10) suggested revising the definition of cements and solvents in §63.6015 to read as follows:

*Cements and solvents* means the collection of all organic chemicals, mixtures of chemicals, and compounds used in the production of rubber tires, including cements, solvents, and mixtures used as process aids. Cements and solvents include, but are not limited to, tread end cements, undertread cements, bead cements, tire building cements and solvents, green tire spray, blemish repair paints, side wall protective paints, marking inks, materials used to process equipment, and slab dip mixtures. Cements and solvents do not include coatings or process aids used in tire cord production, puncture sealant application, rubber processing, or materials

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<sup>23</sup>Memorandum from B. Friedman, EC/R, and H. Brown, EC/R, to T. Wayne, ESD/PPSG. June 7, 2000. Control Costs for Tire Cord Production in the Rubber Tire Manufacturing Source Category.

<sup>24</sup>Memorandum from B. Friedman, EC/R, to T. Wayne, ESD/PPSG. June 9, 2000. Nationwide Costs for the Rubber Tire Manufacturing Source Category.

used to construct, repair, or maintain process equipment, or chemicals and compounds that are not used in the tire production process such as materials used in routine janitorial or facility grounds maintenance, office supplies (e.g., dry-erase markers, correction fluid), architectural paint, or any substance to the extent it is used for personal, family, or household purposes, or is present in the same form and concentration as a product packaged for distribution to and use by the general public.

Response: EPA agrees with the commenter's clarification and will revise §63.6015 of the final rule to include it.

## 2. Fabric Processed

Comment: One commenter (IV-D-02) said the rule should define the term "fabric processed," because it is used throughout the rule, it would be consistent with the approach of defining "rubber processed," and it would avoid ambiguity of whether the term refers to coated or uncoated fabric.

Response: EPA believes the commenter's suggestion would provide a useful clarification. Section 63.6015 will contain the following definition: "Fabric processed means the amount of fabric coated and finished for use in subsequent product manufacturing."

## 3. Rubber Processing

Comment: Commenters (IV-D-10, IV-D-08, IV-D-09) asked that EPA modify its description of rubber processing in the applicability section of the proposed rule and preamble and add the following definition of "rubber processing:"

*Rubber processing* means the collection of manufacturing processes that mix, form and cure rubber compounds used in tire manufacturing, such as mixing, milling, calendaring, extruding, curing, and grinding.

The proposed definition would clarify that rubber processing operations that occur during and after the application of solvents and cements, as well as prior to application, would be part of the rubber processing subcategory. This definition is consistent with the RMA MACT database emission estimates. One commenter (IV-D-08) said the absence of such a definition would mandate reformulation of rubber compounds.

Response: The proposed definition of rubber processing was designed to differentiate it from operations that use cements and solvents in subsequent tire processing steps. The proposed definition would not require reformulation of rubber compounds. The commenter's proposal is inconsistent with this intent.

## 4. Tire Cord

Comment: One commenter (IV-D-10) said the definition of “tire cord” should not include steel as an example. Instead, the industry defines tire cord as a textile substrate. Including steel in the definition would be contrary to industry practice and would not reflect the data EPA collected as the basis for the rule. They added that steel wire is coated using a different process than textile fabric, it typically occurs at separate facilities, and is associated with little, if any HAP emissions.

Response: EPA will delete the reference to steel because it is not needed.

#### 5. Other Definitions

Comment: One commenter (IV-D-10) presented several modifications not discussed elsewhere to the proposed definitions. The proposed changes are presented in Table 4.

Response: EPA reviewed the suggested modifications and either made appropriate changes or retained the proposed definitions, as described in Table 4.

#### C. New and Reconstructed Affected Sources

Comment: One commenter (IV-D-02) asked for guidance on how additions of new equipment into an existing affected source would be addressed with respect to emission limitations, compliance dates, and notifications.

Response: Table 5 summarizes key compliance and reporting and recordkeeping requirements for both new and existing sources. Table 1 in the final rule preamble will summarize the emission limitations. EPA notes that the reconstruction trigger would apply to the entire affected source, so that the addition of a new mix tank or other individual pieces of equipment would be unlikely to trigger new source standards.

Comment: One commenter (IV-D-04) said the proposed rule constrains future opportunities for innovative control applications by proposing a broad interpretation for source reconstruction as the capital cost of replacing the entire affected source. It also seems to weaken federal new source performance requirements.

TABLE 4. OTHER DEFINITION CHANGES TO THE FINAL RULE

Commenter's Changes to Proposed §63.6015 Definition	Definition as it Appears in Final Rule	Comments
<i>As purchased</i> means the condition of a cement and solvent delivered to the facility.	<i>As purchased</i> means the condition of a cement and solvent delivered to the facility, prior to any mixing blending or dilution.	The language “prior to any mixing, blending, or dilution” is critical to the definition and consistent with EPA’s intent to preclude dilution of materials prior to the compliance demonstration.
<i>Components of rubber tires</i> means any piece or part used in the manufacture of rubber tires that becomes an integral portion of the rubber tire when manufacture is complete and includes mixed rubber compounds, sidewalls, tread, tire beads, and liners. Other components often associated with rubber tires such as wheels, valve stems, tire bladders and inner tubes are not considered components of rubber tires for the purposes of these standards. Tire cord and puncture sealant, although components of rubber tires, are considered as separate affected sources in these standards and are defined separately.	<i>Components of rubber tires</i> means any piece or part used in the manufacture of rubber tires that becomes an integral portion of the rubber tire when manufacture is complete and includes mixed rubber compounds, sidewalls, tread, tire beads, and liners. Other components often associated with rubber tires such as wheels, valve stems, tire bladders and inner tubes are not considered components of rubber tires for the purposes of these standards. Tire cord and puncture sealant, although components of rubber tires, are considered as separate affected sources in these standards and are defined separately.	EPA agrees with the change. It is consistent with other clarifications to rubber-related definitions and terms. “Tire bladder” will be added to the final definition to implement EPA’s decision that these are not integral components.
<i>Control system efficiency</i> means the total volatile organic compound (VOC) emissions, as measured by Method 25 or 25A, recovered or destroyed by a control device (in percent) divided by the total volatile organic compound (VOC) emissions, as measured by Method 25 or 25A, that are captured and conveyed to the control device .	<i>Control system efficiency</i> means the percent of total volatile organic compound emissions, as measured by EPA Method 25 or 25A (40 CFR part 60, appendix A), recovered or destroyed by a control device multiplied by the percent of total volatile organic compound emissions, as measured by Method 25 or 25A, that are captured and conveyed to the control device.	The change to refer to total volatile organic compounds is consistent with the decision to allow measurement of VOC as a surrogate for total HAP. The proposed change to divide the amount destroyed by the amount captured is incorrect. The efficiency is the product of the two values.

Commenter's Changes to Proposed §63.6015 Definition	Definition as it Appears in Final Rule	Comments
<p><i>Deviation</i> means any instance in which an affected source, subject to this subpart, or an owner or operator of such a source:</p> <p>(1) Fails to meet any requirement or obligation established by this subpart including, but not limited to, any emission limitation (including any operating limit) or work practice standard;</p> <p>(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or</p> <p>(3) Registers as an excursion from any emission limitation (including any operating limit) or work practice standard in this subpart during startup, shutdown, or malfunction, regardless of whether or not such failure is permitted by this subpart.</p>	<p><i>Deviation</i> means any instance in which an affected source, subject to this subpart, or an owner or operator of such a source:</p> <p>(1) Fails to meet any requirement or obligation established by this subpart including, but not limited to, any emission limitation (including any operating limit) or work practice standard;</p> <p>(2) Fails to meet any term or condition that is adopted to implement an applicable requirement in this subpart and that is included in the operating permit for any affected source required to obtain such a permit; or</p> <p>(3) Fails to meet any emission limitation (including any operating limit) or work practice standard in this subpart during startup, shutdown, or malfunction, regardless of whether or not such failure is permitted by this subpart.</p>	<p>As described in section IV.F, EPA believes the final rule has appropriate monitoring requirements related to deviations and has not adopted an excursion-based approach.</p>
<p><i>Mixed rubber compound</i> means the material, commonly referred to as rubber, from which rubber tires and components of rubber tires are manufactured. For the purposes of this definition, mixed rubber compound refers to the compound that leaves the rubber mixing process (for example, banburys) and is then processed into components from which rubber tires are manufactured.</p>	<p><i>Mixed rubber compound</i> means the material, commonly referred to as rubber, from which rubber tires and components of rubber tires are manufactured. For the purposes of this definition, mixed rubber compound refers to the compound that leaves the rubber mixing process (e.g., banburys) and is then processed into components from which rubber tires are manufactured.</p>	<p>EPA agrees with the change. It is consistent with other clarifications to rubber-related definitions and terms.</p>

Commenter's Changes to Proposed §63.6015 Definition	Definition as it Appears in Final Rule	Comments
<i>Monthly operating period</i> means the period in the Notification of Compliance Status report comprised of a calendar month or a prespecified period of 28 or 35 days (utilizing a 4-4-5 week recordkeeping and reporting schedule).	<i>Monthly operating period</i> means the period in the Notification of Compliance Status report comprised of the number of operating days in the month.	The proposed change appears to be designed to increase the similarities between the rubber tire NESHAP and the NSPS. As explained in section V.B, the NSPS is based on an entirely different compliance scheme than the NESHAP.
<i>Process aid</i> means a chemical or mixture of chemicals used to facilitate or assist in tire component identification; tire building; tire curing; and tire repair, finishing, and identification.	<i>Process aid</i> means a solvent, mixture, or cement used to facilitate or assist in tire component identification; component storage; tire building; tire curing; and tire repair, finishing, and identification.	EPA agrees with need to add this definition. EPA has made minor changes for consistency and clarity.
<i>Rubber</i> means the sum of the materials (for example, natural rubber, synthetic rubber, carbon black, oils, sulfur) that are combined in specific formulations for the sole purpose of making rubber tires or components of rubber tires.	<i>Rubber</i> means the sum of the materials (for example, natural rubber, synthetic rubber, carbon black, oils, sulfur) that are combined in specific formulations for the sole purpose of making rubber tires or components of rubber tires.	EPA agrees with this clarification.
<i>Rubber tire</i> means a continuous solid or pneumatic cushion typically encircling a wheel and usually consisting, when pneumatic, of an external rubber covering and manufactured for commercial purposes.	<i>Rubber tire</i> means a continuous solid or pneumatic cushion typically encircling a wheel and usually consisting, when pneumatic, of an external rubber covering.	EPA agrees with the commenter that rubber tires manufactured for purposes of research and development should be excluded under the general exclusion for research and development. EPA does not agree with the broad statement of "for commercial purposes" but understands that the commenter may have intended this clarification for research and development, which is the only exclusion under the rubber tire manufacturing NESHAP.

TABLE 5. KEY RUBBER TIRE RULE DATES

Affected source	Compliance date	Submit initial notification	Submit notification of intent to conduct a performance test	Conduct performance tests <sup>25</sup> /initial compliance	Notification of compliance status	Subsequent compliance reports
Existing affected sources	Within 3 years from effective date (63.5983(b))	By 120 days after the effective date of this subpart (63.6009(b))	At least 60 days before the performance test is scheduled to begin (63.6009(d))	No later than the compliance date (63.5991(b))	Within 30 days following completion of the completion of the initial compliance demonstration (63.6009(e)(1))	By July 31 or January 31, whichever date follows the end of the first calendar year after the compliance date and semiannually thereafter (63.6010(b)) unless is meeting the purchase option, in which case annual reports are allowed (63.6010(f))
New or reconstructed affected sources	Upon startup or the effective date, whichever is later (63.5983(a))	By 120 days after the effective date of this subpart or startup, whichever is later. (63.6009(b) and (c))	At least 60 days before the performance test is scheduled to begin (63.6009(d))	Within 180 days after the compliance date (63.5991(a))	Within 60 days following completion of the performance test (63.6009(e)(2))	Same as above

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<sup>25</sup>Subsequent performance tests must be conducted at least once/year following the initial compliance demonstration (§3.5992)

Response: EPA considered the pros and cons of a broad new or reconstructed affected source definition. EPA still believes the advantages (avoiding the replacement of individual pieces of equipment triggering reconstruction and a facility-wide emission limit) outweigh the potential disadvantages.

#### D. Carbon Black Reference

Comment: One commenter (IV-D-06) was concerned about a comment made in the proposal preamble about carbon black. The preamble states: “Heat generated by the physical nature of compound mixing and added curing agents also causes HAP emissions (e.g., carbon black and sulfur chemically combine to form carbon disulfide).” The commenter said this statement is misleading because carbon black is not the primary source of carbon forming carbon disulfide in the rubber manufacturing industry. The commenter suggested changing the statement by removing the word “black”, or adding the other likely sources of carbon (e.g., rubber itself) in the example.

Response: While EPA lacks information on the percentage of carbon in carbon disulfide from carbon black, this clarification is not particularly relevant to the final rule. This proposal preamble merely cited this information as an example.

#### E. Technical Inconsistencies

Comment: One commenter (IV-D-10) provided a list of inconsistencies they noted in the proposed rule.

Response: The following provides a list of changes made to the final rule in response to noted inconsistencies:

- In §§63.5994 and 63.5997, the definitions of EFF were amended to provide one consistent definition, written as capture multiplied by control.
- In §63.5997(d)(2) the reference to §63.6011(c)(7) was deleted.
- In §63.6000(b), Equation 1 was amended to properly calculate overall efficiency.
- In §63.6004(c), the reference to §63.5984(a) was changed to §63.5985(a) to reflect the proper reference.
- In §63.6010(c)(8), the reference to §63.6009(e)(1) was changed to §63.6009(g) to reflect the proper reference.
- The cross references in Tables 6, 10, 12, and 15 were corrected.

#### F. Endorse RMA Comments

Comment: Some commenters (IV-D-07, IV-D-08, IV-D-09) noted they support the RMA comments and their individual comments should be seen as supplementing those comments and highlighting their individual companies' concerns.

Response: EPA understands the commenters' intent.

G. ASTM Method Change

Comment: One commenter (IV-D-11) said an ASTM method referenced in the proposed rule has been replaced by a more current version.

Response: EPA will incorporate this information in the final rule analysis for voluntary consensus standards.